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Turning the pink cloud grey: Dampening of positive affect predicts postpartum depressive symptoms.

Raes, Filip; Smets, Jorien; Wessel, Ineke; Van Den Eede, Filip; Nelis, Sabine; Franck, Erik; Jacquemyn, Yves; Hanssens, Myriam

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Turning the pink cloud grey:

Dampening of positive affect predicts postpartum depressive symptoms

Filip Raes^a, Jorien Smets^{ab}, Ineke Wessel^c, Filip Van Den Eede^d, Sabine Nelis^{ah}, Erik Franck^e, Yves Jacquemyn^f, Myriam Hanssens^g

Author note

^aFaculty of Psychology and Educational Sciences, University of Leuven, Belgium

^bDepartment of Applied Psychology, Thomas More University College, Antwerp, Belgium

^cDepartment of Clinical Psychology and Experimental Psychopathology, University of Groningen, the Netherlands

^d University Department of Psychiatry, Campus Antwerp University Hospital, and Collaborative Antwerp Psychiatric Research Institute, Faculty of Medicine and Health Sciences, Antwerp University, Belgium

^eDepartment of Nursing and Midwifery, Antwerp University, and Department of Health Care, Karel de Grote University College, Belgium

^fDepartment of Gynaecology, Obstetrics and Fertility, Antwerp University Hospital, and Department of Obstetrics and Gynaecology, Antwerp University, Belgium

^gDepartment of Obstetrics and Gynaecology, University Hospital Gasthuisberg, and Faculty of Medicine, Department of Development and Regeneration, University of Leuven, Belgium

^hresearch assistant of the Research Foundation – Flanders (FWO)

*co-first author

Correspondence concerning this article can be addressed to Filip Raes, Faculty of Psychology and Educational Sciences, University of Leuven, Tiensestraat 102 box 3712, 3000 Leuven, Belgium.

E-mail: filip.raes@ppw.kuleuven.be, Telephone number: +3216325892

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Abstract

Background. Maladaptive response styles to negative affect have been shown to be associated with prospective (postpartum) depression. Whether maladaptive styles to positive affect are also critically involved is understudied, even though anhedonia (i.e. low positive affectivity) is a cardinal symptom of depression. The present study is the first to investigate the predictive value of cognitive response styles to both negative (depressive rumination) and positive affect (dampening) for postpartum depressive symptoms.

Methods. During the third trimester of pregnancy, 210 women completed self-report instruments assessing depression (symptom severity and current and/or past episodes) and scales gauging the presence of depressive rumination and dampening. Of these women, 187 were retained for postpartum follow-up, with depressive symptoms being reassessed at 12 ($n = 171$) and 24 ($n = 176$) weeks after delivery.

Results. Regression analyses showed that higher levels of dampening of positive affect during pregnancy predicted higher levels of depressive symptoms at 12 and 24 weeks postpartum, irrespective of initial symptom severity, past history of depression and levels of rumination to negative affect. Prepartum trait levels of rumination, however, did not predict postpartum symptomatology when controlled for baseline symptoms and history of major depressive episode(s).

Conclusions. The results of this investigation add to the emerging body of evidence suggesting that the way people cognitively respond to positive affect contributes equally or perhaps even more so to the development of depression than maladaptive response styles to negative affect. Our study is the first to extend this observation to the case of postpartum depression.

Key words: affect regulation; rumination; dampening; positive affect; depression, postpartum depression; prediction; anhedonia.

Turning the pink cloud grey:

Dampening of positive affect predicts postpartum depressive symptoms

Background

Postpartum depression refers to a major depressive episode following childbirth (O'Hara & McCabe, 2013) and affects as many as 7.1% of women in the first three months postpartum (Gavin *et al.* 2005). Given this high prevalence and the well-documented negative consequences of postpartum depression for both mother and child (see O'Hara & McCabe, 2013, for a review), many studies have been conducted to explore potential risk factors for this distressing condition. The greater part of this research typically looked into potential predisposing demographic factors and the pregnancy itself, whereas the role of *cognitive risk factors* was largely neglected (Barnum *et al.* 2013, p. 71) despite their being central to influential theories in the larger depression literature.

For example, past research has shown that depressive rumination, a dysfunctional cognitive response style to negative or depressed affect, is critically linked to depression. Nolen-Hoeksema (1991) defined depressive rumination as a cognitive dwelling on one's sad or depressed feelings and the possible causes and consequences of these feelings. "Why do I always feel like this?", "Where did it all go wrong?" and "Will I ever feel better again?" are characteristic examples of ruminative thoughts. This typical response style to negative affect has been consistently shown to contribute to the development and maintenance of depressive symptoms and clinical episodes (see Nolen-Hoeksema *et al.* 2008; Watkins, 2008). Thus, the more people respond to negative, sad or depressed feelings with such ruminative thinking, the more likely it is that these feelings will be prolonged, deepened and possibly progress to a (new) full-blown clinical depressive episode.

Recent studies have provided preliminary evidence suggesting that depressive rumination may also play a role in the development of postpartum depression. O'Mahen *et al.* (2010), for instance, found that in a group of pregnant women at risk of depression, rumination predicted prospective increases in depressive symptoms over a 3-month follow-up in those with poor social functioning. It should be noted, however, that in only 41.6% ($n = 26$) of cases the follow-up was conducted after delivery. Assessing depressive rumination during the third trimester of pregnancy in 101 women, Barnum *et al.* (2013) found that the coping style was not predictive of short-term depressive responses (baseline to 1-month postpartum), but that it did predict longer-term symptom

changes (baseline to 2-months postpartum). Finally, in a study by Müller *et al.* (2013) prepartum rumination did not predict postpartum depressive symptoms five weeks after childbirth.

Considering all the above, depressive rumination during pregnancy is taken to be predictive of higher levels of postpartum depressive symptoms, which is in line with the general literature documenting a predictive association between rumination and depression. Arguably, postpartum symptoms may be limited to longer-term reactions (≥ 2 months postpartum; Barnum *et al.* 2013), while appearing less relevant in the immediate postpartum period (Barnum *et al.* 2013; Müller *et al.* 2013). Also, the handful of studies conducted so far are limited by their relatively small sample sizes ($N \leq 100$) as well as by the fact that none of the studies took prior history of clinical depression into account. This latter omission is not without importance, since (a) prior history of clinical depression is a well-known risk factor for future depression, including postpartum depression (e.g. Eberhard-Gran *et al.* 2002; also see O'Hara & McCabe, 2013), and (b) cognitive risk factors such as depressive rumination are often elevated in people with a history of depression (e.g., Huffziger *et al.* 2009). Accordingly, before one can draw firm conclusions regarding the predictive value of any hypothesized risk factor, in this case a ruminative response style to negative or depressed affect, prior depression needs to be controlled for.

Furthermore, recent research has made clear that focusing on how people respond to negative affect (e.g. by engaging in depressive rumination) may only tell us half the story of disrupted or maladaptive emotion regulation underlying depression. Depression is not only characterized by an increase in negative affect but also by a decrease in positive affect or a diminished ability to respond to positive affect (i.e. anhedonia). Therefore, one could reasonably expect that depressed individuals and those vulnerable to depression also respond differently to positive affect, just as they differ from healthy individuals in how they cognitively deal with negative feelings. There is some preliminary evidence to suggest that this might indeed be the case, in that symptoms of depression appear to be associated with what is called a *dampening* cognitive response style to positive emotion. "I probably don't deserve this", "Ah well, these good feelings won't last, you'll see", "I shouldn't forget that there have been times that I wasn't so lucky", are some examples of dampening thoughts people may resort to when feeling (particularly) happy (e.g. Feldman *et al.* 2008). Dampening basically comes down to effortful cognitive attempts to downregulate positive feelings which prevents an individual from fully enjoying or

benefiting from pleasant experiences. Results of cross-sectional studies have shown that higher levels of dampening predict higher levels of concurrent depressive symptoms in students above and beyond depressive rumination (Feldman *et al.* 2008; Johnson *et al.* 2008; Raes *et al.* 2009), as well as in children (Bijttebier *et al.* 2012). In another cross-sectional study students with clinically significant levels of depressive symptomatology self-reported significantly higher levels of dampening than the controls (Nelis *et al.* 2013). Also in students, lifetime history of depressive symptoms was found to be positively associated with higher dampening scores (Eisner *et al.* 2009). Finally, in a series of three cross-sectional studies, Werner-Seidler *et al.* (2013) confirmed that the phenomenon was related to depressive symptoms in students, while they additionally showed that also clinically depressed adults reported higher levels of dampening than never-depressed controls. Importantly, preliminary data furthermore indicate that the positive association between dampening and depression also holds prospectively. In two student samples our research group (Raes *et al.* 2012) found that increased levels of dampening responses predicted higher levels of depressive symptoms at follow-up while controlling for baseline depressive symptomatology and depressive rumination (but see Bijttebier *et al.* 2012, for a nonreplication in children).

It was our conclusion that these preliminary results indicate that dampening responses to positive affect add useful information above and beyond ruminative responses to negative affect in explaining both concurrent and prospective symptoms of depression (Raes *et al.* 2012). Still, the vast amount of studies documenting a robust positive association between (ruminative) responses to negative affect and depression stands in sharp contrast to the relatively few studies that have investigated and documented a link between (dampening) responses to positive affect and depression. Werner-Seidler *et al.* (2013, p. 46) rightly note that such an asymmetry is to some extent understandable since depression is typically labelled as a disorder of elevated negative affect; yet, decreased positive affectivity (i.e. anhedonia) is of course the other cardinal symptom of depression.

There is a clear need for more studies examining the involvement of maladaptive regulation of positive affect in explaining the development and persistence of depressive symptoms in other than student populations as the assessment of such response styles in at-risk and clinical populations may tell us the other half of the story of affect regulation deficits underlying depression in general and postpartum depression in particular. We do not know of any study that has looked at this side of the story, even though inadequate responses to positive emotions can be expected to play a (key) role

especially in postpartum depression since pregnancy and giving birth are typically accompanied by a mixture of both negative and positive events and feelings.

The present study hence aims to examine the predictive value of cognitive response styles to both negative and positive affect for prospective postpartum symptoms of depression. More specifically, using multiple regression analyses and by controlling for baseline depressive symptoms and prior history of major depression, we investigated whether depressive rumination and dampening predict postpartum depressive symptomatology.

Methods

Participants

Pregnant women receiving care at the University Hospitals of Leuven ($n = 155$) and Antwerp ($n = 55$), both in Belgium, were invited to participate in this study. Participants needed to be at least 18 years old and fluent in Dutch, with a pregnancy between 24 and 34 weeks without complications and no history of (hypo)manic episodes. Of the women meeting these criteria, 210 agreed to take part, with 18 dropping out at an early stage of the study, leaving 192 women from whom we collected prepartum data. One of the women lost her baby three days after delivery and we decided to omit her from the follow-up analyses because we wanted to keep the study sample as homogeneous as possible given that our main interest was in depression rather than grief. In addition, four women met the DSM-IV (American Psychiatric Association, 2000) criteria for current major depressive disorder according to the Major Depression Questionnaire (MDQ; Van der Does *et al.* 2003) at baseline. They were also omitted from the analyses as we were interested in depression risk factors for a currently non-clinically depressed sample. Of the remaining 187 women ($M_{\text{age}} = 29.75$; $SD = 4.13$; range: 19–45), 171 returned the questionnaires of the first postpartum measurement at 12 weeks, while the second postpartum assessment at 24 weeks was returned by 176 respondents. All mothers received a €25-coupon of a mother-and-baby store for their participation. The study was approved by the (medical) ethics committees of the Faculty of Psychology and Educational Sciences, University of Leuven and the University Hospitals of Leuven and Antwerp.

Materials

Ruminative Response Scale (RRS; Nolen-Hoeksema & Morrow, 1991). The RRS assesses the tendency to ruminate when feeling sad, down, or depressed. Its 22 items index reactions to mood that are self-focused, symptom-focused and focused on the possible consequences and causes of the sad/depressed feelings. Item examples are “Go someplace alone to think about your feelings” and “Why do I always react this way?” Items are scored on a 4-point Likert scale, ranging from *almost never* (1) to *almost always* (4). The Dutch version by Raes *et al.* (2003) was used. Cronbach’s alpha in the present sample was .93 ($n=176$).

Responses to Positive Affect questionnaire (RPA; Feldman *et al.* 2008). The RPA gauges responses to positive affect. All 17 items are scored on a 4-point Likert scale, ranging from 1 (*almost never*) to 4 (*almost always*). The measure has three subscales: *Dampening* (e.g. ‘Remind yourself these feelings won’t last’), *Self-focused positive rumination* (e.g. ‘Think “I am achieving everything”’) and *Emotion-focused positive rumination* (e.g. ‘Think about how happy you feel’). We used the 16-item Dutch version for which adequate psychometric properties are reported (Raes *et al.* 2009). Cronbach’s alphas in the present sample were .81 ($n=179$; Dampening subscale; 7 items), .83 ($n=180$; Self-focused subscale; 4 items) and .70 ($n=180$; Emotion-focused subscale; 5 items).

Depression subscale of the Depression Anxiety Stress Scales (DASS-D; Lovibond & Lovibond, 1995). The DASS-D measures the severity of depressive symptoms for the past week. All 7 items are scored on a 4-point Likert scale, ranging from 0 (*did not apply to me at all*) to 3 (*applied to me very much or most of the time*). We used the Dutch version by de Beurs *et al.* (2001). Cronbach’s alpha in the present sample was .82 ($n=179$).

Edinburgh Postpartum Depression Scale (EPDS; Cox *et al.* 1987). The EPDS is a 10-item self-report scale with statements describing depressive symptoms and is specifically designed to assess postpartum depressive symptoms. The items refer to being able to laugh, looking forward to things with enjoyment, blaming oneself unnecessarily, being anxious or worried unnecessarily, reacting scared or panicky, being unable to cope, having difficulty sleeping, feeling sad or miserable, crying, and thinking of harming oneself. Each question has four possible answers ranging from *almost always* to *never*. We used the Dutch version (Pop *et al.* 1992). Cronbach’s alpha in this sample was .85 for the first postpartum assessment ($n=171$; EPDS-12w) and .86 for the second postpartum assessment ($n=176$; EPDS-24w).

Major Depression Questionnaire (MDQ; Van der Does *et al.* 2003). The MDQ is a self-report instrument to determine the presence of past and current major depressive episodes using questions covering DSM-IV criteria (APA, 2000). The MDQ has good convergent validity with diagnoses based on the Structured Clinical Interview for DSM-IV (Williams *et al.* 2008).

Procedure

All pregnant women were invited to participate while waiting to consult their gynaecologist. If they agreed to participate and fulfilled the inclusion criteria, they performed a computer task and a memory test, both of no interest for the present study. Afterwards, participants received a questionnaire booklet with the request to return the completed booklet by mail within two days (T1). The booklet included the DASS-D, MDQ, RRS, RPA and some questionnaires that were unrelated to the research questions of the present study. At 12 (T2) en 24 weeks (T3) after delivery, participants were sent a second booklet that also included the EPDS with the same request to return the completed booklet by post within two days.

Results

Background variables, descriptive statistics and zero-order associations between variables of interest

At the antenatal assessment (T1) all but three women (98%) indicated that they were in an intimate relationship, with all but four women (98%) reporting to receive adequate social support. For 167 women (89%) the pregnancy was planned, while for 89 women (48%) this was their first pregnancy (primigravida). Our sample was relatively well-educated: two women (1%) indicated their education to comprise primary school only, 43 women (23%) had completed secondary school, 74 women (40%) had obtained a higher education (non-university) degree and 68 women (36%) a university degree. Thirty-four women (18%) had suffered from a major depressive episode at least once in their lifetime (as indicated by the MDQ). Using an EPDS cut-off score of 13 or more (as recommended by Matthey, Henshaw, Elliott, & Barnett, 2006), the prevalence rate of postpartum depressive disorder was 8.2% at 12 and 8.0% at 24 weeks postpartum in our sample.

Means and standard deviations for all variables can be found in Table 1. Zero-order correlations between all variables of interest are presented in Table 2.

Prediction of postpartum depressive symptoms

Two identical hierarchical regression analyses were performed to examine the predictive

values of our key variables for postpartum depressive symptoms, with depressive symptoms at T2 (EPDS-12w) and T3 (EPDS-24w) being the respective criterion variables. In both analyses depressive symptoms (DASS-D) at T1 were included in Step 1, alongside past history of a major depressive episode (MDQ; no previous episode(s) being coded as 0 and previous episode(s) as 1). In Step 2 rumination to sad or depressed feelings (RRS) was entered and in Step 3 the scores on the three RPA subscales. Table 3 summarizes the results of both analyses.

Unsurprisingly, higher levels of depression symptoms at baseline and a past history of depressive episode(s) predicted higher levels of depression symptoms 12 weeks postpartum. Depressive rumination was positively associated with 12-week postpartum depressive symptoms, but not statistically significantly so. Of note here is that when prior history of depressive episodes was removed from the model in Step 1 (thus controlling for baseline depressive symptoms only) depressive rumination did significantly predict depressive symptoms at T2, suggesting that the relationship between depressive rumination and follow-up depressive symptoms is accounted for by past history of depressive episodes. And indeed, when we compared the mean levels of depressive rumination for the respondents with a history of depressive episodes to those of the never-depressed respondents, we saw that the formerly depressed or remitted women ($n=34$) had obtained significantly higher depressive rumination scores than the never-depressed women ($n=142$), $t(41.137) = 5.65$, $p < .001$. Most importantly, when entered in Step 3 dampening significantly predicted depressive symptoms, such that increased dampening at baseline predicted higher levels of depressive symptoms 12 weeks postpartum over and above baseline symptomatology, history of depressive episode(s) and depressive rumination. Scores on the RPA Self-focus and Emotion-focus subscales did not significantly predict depressive symptoms.¹

The results for the second follow-up were very similar. Again, depressive symptoms during pregnancy and a history of depressive episode(s) significantly predicted symptoms of depression 24 weeks postpartum, while depressive rumination again was not a significant predictor. With past history of depression removed from the model, it did show a significant association with follow-up (T3) symptoms. As at T2, and taking into account baseline symptoms during pregnancy, prior history of major depressive episode(s) and depressive rumination, dampening significantly predicted symptoms of depression at T3.

Conclusions

The aim of the current study was to examine the predictive value of two cognitive regulatory styles of affect for postpartum depressive symptoms, depressive rumination and dampening. Documented extensively, depressive rumination is a maladaptive response style to negative/depressed affect known to elicit and aggravate (symptoms of) depression (Nolen-Hoeksema *et al.* 2008). Dampening is maladaptive in that it renders people less or incapable of fully enjoying or benefiting from positive experiences, but its association with depression is far less well documented as depression research has only recently been directed to positive affect regulation. Still, there are preliminary findings suggesting that a dampening response style to positive affect goes hand in hand with depressive symptoms (e.g., Raes *et al.* 2009, 2012; Nelis *et al.* 2013; Werner-Seidler *et al.* 2013) and that it may even predict prospective levels of depression (Raes *et al.* 2012).

A first observation we made in our current prediction study was that depressive symptoms during pregnancy and a past history of major depressive episode(s) independently predicted postpartum depressive symptoms at 12 and at 24 weeks following childbirth, which result is in line with other robust findings in the postpartum depression literature showing that both factors are modest to strong predictors of postpartum depression (O'Hara & McCabe, 2013).

Our second observation was that, once controlled for baseline prepartum depressive symptoms and prior history of major depressive episode(s), prepartum trait levels of depressive rumination did not predict postpartum symptomatology. This is in contrast with the vast amount of studies that did show depressive rumination to be involved in the development and maintenance of (non-postpartum) depression. However, the majority of these studies did not control for past history of major depression and our findings accordingly make clear that these earlier results need to be interpreted with caution. We also strongly suggest that future studies examining the role of depressive rumination in the development of (postpartum) depression assess lifetime history of depression as this variable may (largely) account for a possible positive association.

The third and most salient finding of our study was that a dampening response to positive affect significantly predicted postpartum depressive symptoms both after 12 and after 24 weeks of delivery.² Note that this was true when baseline prepartum symptoms, prior history of major depressive episodes – two well-established predictors – and depressive rumination were taken into account. To our knowledge, ours is the first study to demonstrate that dampening of positive affect

prospectively predicts postpartum depressive symptoms and also the first to show that this holds true independently of a past history of major depression. The fact that a dysfunctional response style to negative affect depressive rumination was not predictive of postpartum depression symptoms furthermore strengthens the idea that the way people cognitively respond to positive feelings is at least as and in some cases even more important than the way they respond to negative feelings in explaining a vulnerability to depression. Up till now there is a marked and, as our results suggest, unjustified imbalance in depression research attention to negative versus positive emotion and the associated cognitive response styles. Finally, studies like the present one are sorely needed if we want to critically improve our understanding of mechanisms underlying positive emotion deficits such as anhedonia in major depression (Werner-Seidler *et al.* 2013). This is especially important given that anhedonia is typically associated with poorer outcome in depression (e.g. Vrieze *et al.* in press), with existing therapies appearing inadequate in treating anhedonia satisfactorily (see Dunn, 2012).

In terms of clinical implications, our results demonstrate that in the prognosis (e.g. screening), prevention and treatment of (postpartum) depression, the regulation of positive emotion (maladaptive dampening in particular) needs to be considered alongside regulation of negative emotion. Or, as stated by Dunn (2012, p. 327), results like ours suggest that “treatment approaches should be oriented to address elevated negativity and blunted positivity in a more even-handed fashion”. Based on our findings, reducing dampening might then be an important focus in treatment. One may, for instance, think of training at-risk or depressed individuals to become more aware of their dampening cognitions and offering them skills that will enable them to disengage from these habitual dysfunctional cognitive routines. Mindfulness-based techniques might be effective here (also see Werner-Seidler *et al.* 2013). Challenging positive metacognitive beliefs with respect to dampening may be another therapeutic avenue to explore in this respect. It is our clinical experience that depressed patients, including those suffering from postpartum depression, sometimes indicate that they deliberately or consciously downtone their positive feelings because they believe that by doing so they can protect themselves from negative outcomes (e.g. “It is best not to enjoy this moment too much, or I run the risk of feeling far worse when these positive feelings have faded. So I’d better temper my feelings of joy now”). Such seemingly positive beliefs about (the protective benefits of) modifying positive feelings may (partially) explain why this depressotypic thinking style is maintained in analogy to how positive beliefs about depressive rumination are thought to maintain ruminative thinking (e.g. Papageorgiou & Wells, 2003).

These erroneous metacognitive beliefs can then, for example, be challenged through metacognitive therapy (Wells, 2009). However, future research will first need to empirically test to what extent metacognitive beliefs play a role in the development and maintenance of dampening responses to positive emotions, as has been done for beliefs about adverse responses to negative emotions.

The main limitation of the present study is that we exclusively relied on self-report inventories for both our independent variables, the central emotion regulation styles, and postpartum depression, the dependent variable. Response biases (e.g. social desirability) and shared method variance may hence possibly have affected the reliability and validity of our results. Ideally, future studies along this line will also include other more objective measures such as an interview-based or clinician-rated assessment of depression symptoms and diagnosis. Notwithstanding these drawbacks, compared to previous cognitive emotion regulation research (especially in the area of postpartum depression), our study has clear strengths, most notably its relatively large sample size and the inclusion of prior history of depression, adding to the relevance of our findings.

Table 1
Means, standard deviations and scoring ranges for all measures included

<i>Measure</i>	<i>N</i>	<i>Min</i>	<i>Max</i>	<i>Mean</i>	<i>SD</i>
RRS	176	22	78	37.23	11.11
RPA-Ef	180	7	20	13.76	2.33
RPA-Sf	180	4	16	9.51	2.69
RPA-Damp	179	7	23	10.99	3.29
DASS-D	179	0	30	3.60	4.99
EPDS-12w	171	0	23	5.63	4.44
EPDS-24w	176	0	22	5.23	4.63

Note. RRS = Ruminative Response Scale; RPA = Responses to Positive Affect questionnaire; Ef = RPA Emotion-focused positive rumination subscale; Sf = RPA Self-focused positive rumination subscale; Damp = RPA Dampening subscale; DASS-D = Depression subscale of the Depression Anxiety Stress Scales; EPDS = Edinburgh Postpartum Depression Scale; 12w = 12 weeks postpartum; 24w = 24 weeks postpartum. *Ns* vary due to missing data.

Table 2
Bivariate zero-order Pearson correlations for all measures included

Measure	RPA-Ef	RPA-Sf	RPA-Damp	DASS-D	EPDS-12w	EPDS-24w
RRS	.10 (176)	-.15* (179)	.15* (175)	.29*** (174)	.33*** (163)	.29*** (166)
RPA-Ef	---	.64*** (180)	.06 (179)	-.02 (178)	.04 (166)	-.01 (169)
RPA-Sf		---	.08 (179)	.01 (178)	.00 (166)	-.05 (169)
RPA-Damp			---	.29*** (177)	.26** (165)	.42*** (168)
DASS-D				---	.32*** (165)	.37*** (168)
EPDS-12w					---	.56*** (165)

Note. RRS = Ruminative Response Scale; RPA = Responses to Positive Affect questionnaire; Ef = RPA Emotion-focused positive rumination subscale; Sf = RPA Self-focused positive rumination subscale; Damp = RPA Dampening subscale; DASS-D = Depression subscale of the Depression Anxiety Stress Scales; EPDS = Edinburgh Postpartum Depression Scale; 12w = 12 weeks postpartum; 24w = 24 weeks postpartum. Corresponding *N* in parentheses.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3
Summary of the hierarchical regression analyses results for the variables predicting depression symptoms at 12 weeks (n=160) and 24 weeks postpartum (n=163)

	<i>B</i>	<i>SE B</i>	β	R^2
DV: EPDS-12w				
Step 1				
Constant	4.21	.42		
DASS-D	.25	.07	.27***	
Past MDE	3.05	.83	.27***	.18***
Step 2				
Constant	2.04	1.22		
DASS-D	.22	.07	.24**	
Past MDE	2.20	.94	.20*	
RRS	.07	.03	.16 ⁺⁺	.19***
Step 3				
Constant	-.19	2.33		
DASS-D	.18	.07	.20*	
Past MDE	2.03	.94	.18*	
RRS	.06	.04	.16 ⁺	
RPA-Ef	.01	.19	.00	
RPA-Sf	.01	.17	.01	
RPA-Damp	.21	.10	.15*	.22***
DV: EPDS-24w				
Step 1				
Constant	3.51	.42		
DASS-D	.29	.07	.32***	
Past MDE	2.90	.83	.25**	.20***
Step 2				
Constant	1.91	1.25		
DASS-D	.27	.07	.30***	
Past MDE	2.27	.95	.20*	
RRS	.05	.04	.11	.21***
Step 3				
Constant	-1.09	2.26		
DASS-D	.21	.07	.23**	
Past MDE	2.17	.91	.19*	
RRS	.03	.04	.07	
RPA-Ef	.07	.18	.04	
RPA-Sf	-.16	.16	-.09	
RPA-Damp	.42	.10	.30***	.29***

Note. When DV (Dependent Variable) = EPDS-12w: $\Delta R^2 = .02$ for Step 2 ($p = .06$); $\Delta R^2 = .02$ for Step 3 ($p = .25$); When DV = EPDS-24w: $\Delta R^2 = .01$ for Step 2 ($p = .18$); $\Delta R^2 = .09$ for Step 3 ($p = .001$).

⁺⁺ $p = .06$. ⁺ $p = .08$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Footnotes

- ¹ It should be noted that, although dampening was a significant predictor in Step 3, the combined addition of the three RPA subscales in Step 3 did not add significantly to explained variance, $\Delta R^2 = .02$, $p = .25$. This is due to the inclusion of non-significant predictors in the model. For example, when the other two RPA subscales, which clearly did not account for a significant amount variance, were left out of the model, adding dampening alone in the third step did significantly add to explained variance (even with depressive rumination still in the model), $p < .05$.
- ² Dampening was assessed using the RPA, which has two other subscales: Emotion-focused positive rumination and Self-focused positive rumination. In another prospective study it was also dampening, and not the other two subscales, that significantly predicted prospective levels of depressive symptoms (Raes *et al.* 2012).

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Conflict of interest

None.

Ethical standards

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

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